

Claim 39 (*currently amended*): A method for objective correction comprising,

a) recording the characteristics of an optical system having an objective by sending a first laser beam through an array of pinholes and through said objective or reflecting said first beam therefrom and through an imaging lens, spaced from said objective, to form an object beam and

b) intersecting said object beam with a reference coherent beam in a recording medium to form an interference pattern or hologram thereof that can correct for defects in said objective.

REMARKS

Claims 1-8, 12-26 and 29-39 are in the present application. Certain of the claims have been amended as indicated above, to add to the recitation of "an objective and an imaging lens" spaced therefrom", or equivalent and no new matter has been added.

In the previous amendment, "and an imaging lens" or equivalent, was added to the independent claims. And in the present rejection, the Examiner replies with the conclusion that this was new matter under the 35 USC 132 and further says that the specification only discloses to record the objective to achieve image correction but does not disclose explicitly to record both the objective and imaging lens for image correction.

However, this matter is fully disclosed in applicant's Figures 3 and 4 and in the discussion thereof in the specification on pages 6 and 7. That is, the last four lines of page 6 states, with respect to Figure 3, that the objective focuses the light through an imaging lens 46, which images the objective onto a suitable light-sensitive material 40. Then on page 7, lines 2 and 3, referring to Figures 3 and 4, it is stated that the 2 lenses, 44 & 46 are the basis of a microscope. Thus, we have an original disclosure that supports the amendment, e.g., to claim 1 a) of an optical system having an objective and an imaging lens and it is impossible that this can be considered new matter. That is, new matter is that material that cannot be found anywhere in the original application. Accordingly, is believed that this objection is met.

The Office Action rejection of claims 15-17, 18, 20, 32-36, and 37-39 as indefinite under 35 USC 112, first paragraph, as being based on new matter, is respectfully traversed.

The Office Action rejection of claims 1-8, 19 and 21-26 under 35 USC 112, first

paragraph, as failing to comply with the enablement requirement for such claims, the new matter objection in another guise, is respectfully traversed.

That is, since there is clearly no new matter here, the above three rejections must fall. That is, Figures 3 & 4 illustrate an objective lens 44 and an imaging lens 46, as original components of the present application.

The Office Action rejection of claims 1, 2, 8, 12, 14, 15-17, 18, 19, 20, 21-26, 29-31, 32 –35, 37, 38 and 39, as obvious under 37 USC 103 (a) over USP 3, 580, 655 to Leith et al (1971), herein'655, in view of USP 3,740,147 to Kallet respectively traversed. Leith does not teach correcting an objective and neither patent suggests holographically correcting a microscope.

However, the Office Action then proposes that since the method of correcting the aberrations of a lens of Leith is not restricted to a particular optical system, that correcting for a microscope lens (in a system of two or more lenses) is implicitly included so as to render applicant's claimed invention an obvious modification of the Leith system

This appears to be a new type of (and overly broad) obviousness rejection. This would mean that a patent on a general scientific method, "holographic correction of a lens" would rule out later patenting of practical applications of such lens, i.e., of a telescope or a microscope

Also, the above test (if a patent recites a general principle and is not restricted to a particular optical system, that it applies to any future practical application), is contrary to the test for obviousness recited in the MPEP, e. g., section 2143. Here, it is recited that to establish a prima facie case of obviousness, three basic criteria must be met.

1. A suggestion or motivation to modify a reference to arrive at the claimed invention,

2. A reasonable expectation of success and

3. The prior art reference must teach or suggest all of the claim limitations.

Such teaching or suggestion must be found in the prior art and not in applicant's disclosure, In re Vaeck, 20 USPQ 2nd 1438(1991).

Here, applicant's claims, as amended, recite an objective and an imaging lens structure in applicant's above independent claims. Such corrected lens combination is not suggested in the prior art. Accordingly, applicant's limited application of a

holographically corrected microscope is seen as novel and unobvious over the prior art. Note that we are not discussing a mere recitation as to the manner in which an apparatus is intended to be used but an actual recited and un-suggested structural difference of applicant's above corrected objective in combination with a spaced imaging lens. That is, the above prior art reference does not teach or suggest all the limitations of applicant's above claims.

The Office Action states that the manner in which a claimed apparatus is intended to be employed does not differentiate it from a prior art apparatus but what about applicant's method claims, i.e., claims 15-18, 20, 32-37 & 39? Here the manner of the method is highly relevant to the novelty of the claim. Yet, the relevant claims in this section of the Office Action, 15, 18, 20, 32, 37 & 39, which provide a method for image correction in a microscope, are not discussed with respect to the prior art.

As for Leith's teaching of a pinhole in his Figure 29, applicant does not claim to have invented the use of a single pinhole and that feature is not relied upon for novelty in applicant's claims. Rather applicant's claims are believed novel for reasons noted above, including that the prior art does not teach or suggest all of applicant's claim limitations, as discussed above.

With regard to applicant's claimed array of a pinholes, beginning in claims 21 et seq., it is believed unexpected that an array of pinholes would be useful as a plurality of light sources would be expected to interfere with each neighboring beam emanating from each point light source. This may indicate why there is a lack of prior art on the subject.

Thus, as to applicant's claimed array of pinholes of claim 21 and later claims, the Office Action admits that no reference has been found to teach such array and falls back on "an obvious matter of design choice", since a single pinhole is known. However, no reference indicates such choice. That is, such array of pinholes has not been seen in prior art lens correction, let alone in a microscope structure, which should highlight the novelty of applicant's claims.

Also, referring to the above discussion of obviousness, we have seen that a prior art reference must teach or suggest all of the claim limitations per In re Vaeck, supra and, as noted above, there is no such reference.

Thus, it is believed that all of applicant's claims that recite "an array of pinholes"

should be seen as allowable, including claim 32, from which claim 36 depends. That is, it is noted that claim 36 is objected to as dependent upon a rejected base claim, but would be allowable if.... Hopefully, claim 36 is now dependent upon a novel base claim, as amended and need not be written in independent form.

Under Response to Arguments, the Examiner points out that "spaced-apart lenses to define a microscope" are not recited in applicant's rejected claims. Accordingly, per the Examiner's suggestion, applicant has amended the above independent claims to recite an optical system having an objective and an imaging lens spaced therefrom or variations thereof. An example of spaced objective and imaging lens is shown quite clearly (for those skilled in the art) in applicant's original Figure 4, which illustrates an objective lens 44 and an imaging lens 46, as original spaced components of the present application.

No justification is seen in attempting to dismiss applicant's claims, as amended, on the grounds of new matter.

In paragraph 10 of the Office Action, the Examiner states that the claims fail to provide any structure which suggests any non-obvious variation from the prior art and gives the example of applicant's holographic image correction in combination with a microscope. But again, Leith does not teach correcting an objective and thus neither the Leith nor Kallet patent suggests holographically correcting a microscope. Thus per the above test, the above references do not teach nor suggest all the limitations of applicant's above claims so as to establish obviousness, per In re Vaeck, above.

Thus, a narrow useful application derived from broader scientific principles can clearly be patentable.

Also an invention even further removed from the prior art is found in applicant's claims 21 et seq. to provide e.g., a microscope with a pinhole array and thus a large field of view, per page 16 on the specification, and, e.g., per claim 32. Further such array of pinholes makes possible the method of claim 36, which provides an image with a contour plot thereof.

To sum up, novel structure is provided by applicant's array of pinholes found, e.g., in claim 21, and novel methods for image correction in a microscope are found in applicant's method claims 15, 18, 20, 32-37 & 39.

Thus with respect to the pinhole arrays per claim 21 & seq., no prior art has been

found, as required by sec. 2143 of the MPEP, which recites three basic criteria for obviousness and cannot be ignored, particularly no. 3, which states that the prior art references must teach or suggest to all of the claim limitations. Thus it is believed that the above pinhole array claims have allowable content.

Thus applicant's claims have been amended to recite novel, useful and specific applications over the generalized holographic principles of the prior art.

In view of the foregoing, the claims of record, as amended, are believed distinguished over the applied art and in condition for allowance.

In accordance with Section 714.01 of the M.P.E.P., the following information is presented in the event that a call may be deemed desirable by the Examiner: Thomas C. Stover, (781) 377-3779.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "T. C. Stover", written over a horizontal line.

THOMAS C. STOVER

Attorney for Applicant

Registration No 22,531